

Damping of LC Ringing in IC (Integrated Circuit) Power Distribution Systems

Abstract

A structure and method for damping LC (inductance–capacitance) ringing in integrated circuit (IC) power distribution systems. The structure comprises a resistance electrically connected in parallel with a plurality of electrical switches. The resistance and electrical switches are electrically connected in series with the package and on-chip power distribution circuit. When on-chip switching activity creates a sudden and appreciable change in IC power demand the electrical switches are opened to temporarily increase the resistance in series with the power supply. This serves to dampen the power-distribution LC ringing. Later, the electrical switches are closed to shunt the series resistance and reduce the level of steady-state voltage drop in the power structure.